

Google apologizes after its Vision AI produced racist results

- Computer vision
 - A branch of A.I. that focus on automated image labeling
- Most of their systems are trained on data sets that only has images of hand held thermometers
 - They can't label the device correctly
- AlgorithmWatch show that Google Vision Cloud (computer vision service) labeled an image of a dark-skinned hand holding a thermometer was labelled "gun"
 - When the same image has a salmon-colored overlay on the hand, the computer label it "monocular"
 - Google update the algorithm
 - As of April 6, it doesn't return a "gun" label anymore
- Statement by Tracy Frey, director of Product Strategy and Operations at Google
 - "This result [was] unacceptable. The connection with this outcome and racism is important to recognize, and we are deeply sorry for any harm this may have caused."
 - "Our investigation found some objects were mis-labeled as firearms and there results existed across a range of skin tones. We have adjusted the confidence scores to more accurately return labels when a firearm is in a photograph."
 - Google had found "no evidence of systemic bias related to skin tone."
- Agathe Balayn, PhD candidate at the Delft University of Technology on topic of bias in automated systems
 - She tested several images in Google's service
 - Conclude that the example might be "a case of inaccuracy without a statistical bias"
 - Because there's no rigorous testing, it's impossible to say that the system is biased
- Background checks
 - Reason that computer vision produce different outcomes based on skin complexion
 - Millions of pictures are labeled by humans, and the system draw automated inferences from them
 - It doesn't recognize any object in the human sense
 - Relies on patterns that were relevant in the training data
 - Example
 - It labels dogs as wolves when the dog was photographed in a snowy background
 - It labels cow as dog when it was photographed on beaches
 - Dark-skinned individuals are featured more often in scenes depicting violence in the training data set
 - Computer will jump to conclusion to label the dark-skin hand to something violence
 - In December, Facebook refused to let an Instagram user from Brazil advertise a picture arguing that it contained weapons
 - It was a drawing of a boy and formula one driver Lewis Hamilton, and both had dark skins
- Real-world consequences (labeling errors)
 - Deborah Raji
 - Tech fellow at New York University's AI Now Institute
 - Wrote that many surveillance technologies are using Google Vision Cloud, and Google's labeling errors will have consequences in the physical world
 - In US, weapon recognition tools are used in schools, concert halls, apartment complexes and supermarkets
 - In Europe, automated surveillance deployed by some police forces probably use it
 - Dark-skinned individuals are more likely to be flagged as dangerous even if they hold an object as harmless as a hand-held thermometer.

- Nakeema Stefflbauer,
 - Founder & CEO of FruenLoop,
 - Community of technologists with a focus on inclusivity
 - Bias in Computer vision software will definitely impact the lives of dark-skinned individuals
 - Rate of mis-identification is consistently higher for women and dark-skinned people,
 - It will disproportionately affect the surveillance with computer vision technology
- More examples
 - Ousmane Bah, a teenager who was wrongly accused of theft at an Apple Store because of faulty face recognitions
 - Amara K. Majeed, who was wrongly accused of taking part in the 2019 Sri Lanka bombings after her face was misidentified
 - Stefflbauer state that the absent of effective regulation, the whole groups could end up avoiding certain buildings/neighborhoods
- Incremental change
 - Fairness was one of Google's "core AI principles" and that they were "committed to making progress in developing machine learning with fairness as a critical measure of successful machine learning" - Tracy Fey
 - Google's image recognition tools have return racially biased results before
 - In 2015, Google Photos labelled two dark-skins individuals "gorillas"
 - The company apologized but did not fixed the issue
 - They just simply remove the gorilla label, even for pictures of that specific mammal
 - Reasons that tech companies still produce racially biased products
 - Their teams are overwhelmingly white and male
 - Making it unlikely that results that discriminate against other groups will found and addressed at the development stage
 - "companies are now just beginning to establish formal processes to test for and report these kinds of failures in the engineering of these systems"
 - "External accountability is currently the main method of alerting these engineering teams"

The racism of technology - and why driverless cars could be the most dangerous example yet

- Researchers from Georgia Tech
 - Analyzed how effective various "machine vision" systems were at recognizing pedestrians with different skin tones
 - Results
 - A.I. systems were consistently better at identifying pedestrians with lighter skin tones than darker
 - One headline comparison suggests that a white person was 10% more likely to be correctly identified as a pedestrian than a black person
- Other examples:
 - Google image-recognition often failed to discern black people from gorillas
 - Kodak colour film that reduced dark skin to a pitch-black smudge
 - Motion-activated taps and driers that refuse to acknowledge the presence of a brown hand but will trigger for a white one
- Good news: Existing self-driving cars use more than one type of sensor
 - Tesla has a radar build in front of the vehicle
 - Google's Waymo uses a bulky, but really accurate Lidar system (Radar but with laser)

- Bad news: Strong market pressure to move towards camera-only systems because of the huge cost savings
 - More system like this would hit the streets in large numbers if they proved significantly safer than human drivers

More than 1,200 Google workers condemn firing of AI scientist Timnit Gebru

- 1200 Google employees and over 1500 academic researchers are speaking out in protest after a Black scientist studying the ethics of A.I. said she was fired by Google after the company attempted to suppress her research and she criticized its diversity efforts
- Timnit Gebru
 - Technical co-lead of Google's Ethical AI team
 - Wrote on twitter
 - She had been fired after sending an email to an internal group for women and allies working in the company's AI unit
 - Her email referenced a dispute over a research paper, and express frustration at Google's diversity programs
 - Her argument
 - "There's zero accountability" or real incentive for Google leadership to change
 - "Your life gets worse when you start advocating for underrepresented people, you start making the other leaders upset"
 - "There is no way more documents or more conversations will achieve anything"
 - She is one of the most well-known and represented Black female scientists working in AI
 - In 2008, she co-authored a widely cited 2018 paper that found higher error rates in facial analysis technology for women with darker skin tones
 - Co-founded the non-profit Black in AI that aims to increase representation of people of color in the field.
 - November, a senior manager at Google told Gebru that she has to either retract or remove her name from a paper she had co-authored
 - The paper is about technology companies could do more to ensure AI systems aimed at mimicking human writing and speech do not exacerbate historical gender biases and use of offensive language
 - Gebru said she will remove her name in exchange of a full explanation of the company's objections and a discussion of a better process for handling such matters in the future. If the company declined, she will resign
 - After Google reject her request, she sent a frustrated email about diversity efforts. Then, the company email her to say it had accepted her resignation
 - They cut off her access to company email
 - Sherrilyn Ifill, president of the NAACP's legal Defense and Educational Fund
 - Wrote on twitter that Gebru's firing was "absolutely infuriating" and "a disaster"
 - "The termination is an act of retaliation against Dr Gebru, and it heralds danger of people working for ethical and just AI - especially Black people and People of Color - across Google"
 - Letter published by a group that organized a walkout at Google over the company's treatment of sexual harassment and gender discrimination.
 - "Research integrity can no longer be taken for granted in Google's corporate research environment, and Dr Gebru's firing has overthrown a working understanding of what kind of research Google will permit. This is also a moment of reckoning beyond Google."
- Wednesday, the National Labor Relations Board issued a complaint accusing Google of unlawfully monitoring and questioning several workers who were then fired for protesting against company policies and trying to organize a union.

- Jeff Dean, head of Google's AI unit
 - Told staff in an email obtained by Platformer that the research paper "didn't meet our bar for publication"
 - He also addresses Gebru's email to the women and allies group
 - "I also feel badly that hundreds of you received an email just this week from Timnit telling you to stop work on critical DEI programs. Please don't"
 - Friday, he released a longer statement about Gebru's termination, which he calls it a resignation
 - He said that the paper did not include enough references to efforts Google has made to lessen the environmental impacts of computing or its attempts to mitigate bias in AI.